I, <u>Eamonn Walter Postlethwaite</u>, of Centrum Wiskunde en Informatica, Science Park 123, 1098 XG Amsterdam, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

• I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK;

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed: Eamonn Walter Postlethwaite Title: Postdoctoral researcher (Dr.)

Date: 24/05/2023

Place: Amsterdam, The Netherlands

I, Joppe Willem Bos, of NXP Semiconductors, Interleuvenlaan 80, 3001, Belgium, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

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Signed:

Title: Joppe W. Bos, PhD Date: April 3, 2023 Place: Leuven, Belgium

I, Léo Ducas, of Centrum Wiskunde & Informatica (Science Park 123, 1098 XG Amsterdam, The Netherlands) and the Mathematical Institute of Leiden University (Niels Bohrweg 1, 2333 CA Leiden, The Netherlands), do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

 I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>;

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed:Léo Ducas

Title: Prof.

Date: May 25th, 2023

Place: Amsterdam, The Netherlands

I, <u>Ludo Niels Pulles</u> of Centrum Wiskunde en Informatica, Science Park 123, 1098 XG Amsterdam, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

 I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>;

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed: Ludo Niels Pulles

Title: PhD student Date: 25 May 2023

Place: Amsterdam, the Netherlands

I, Olivier Bronchain, of NXP Semiconductors, Interleuvenlaan 80, 3001, Belgium, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

✓ I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK;

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed:

Title: Olivier Bronchain, PhD

Slevist

Date: April 3, 2023 Place: Leuven, Belgium

I, Serge Fehr, of Centrum Wiskunde & Informatica (CWI), Science Park 123, 1098 XG Amsterdam, The Netherlands, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

• I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>;

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed:

Title: Serge Fehr, Prof.dr.

Date: May 2, 2023 Place: Amsterdam

Statement 2.D.1

I, Thomas Pornin, of NCC Group, 7 Father David Bauer Drive, Suite 100, Waterloo, ON, Canada, N2L 0A2, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that:

 I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK.

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment.

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.D.1, 2.D.2 and 2.D.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed: Thomas Pornin

Title: Technical Vice President

Date: 2023/04/14 Place: Québec, Canada

I, Thomas Prest, of PQShield, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

 \sqrt{I} do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as \underline{HAWK} :

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment

I do hereby agree to provide the statements required by Sections 2.D.2 and 2.D.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

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Signed:

Thomas Prest

Title:

Lead Cryptography Researcher

Date:

24 May 2023

Place

Paris, FR



I, **Wessel van Woerden**, of **Université de Bordeaux**, **351**, **cours de la Libération** - **F 33 405 TALENCE**, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

• I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>;

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Signed: Wessel van Woerden

Title: Post Doctoral Researcher (Dr.)

Date: 2023-05-25

Place: Talence, France.

I, Yu-Hsuan Huang, of Centrum Wiskunde & Informatica, Science Park 123, 1098 XG, Amsterdam, The Netherlands , do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as <u>HAWK</u>, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that (check one):

I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as HAWK;

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Signed: Yu-Hsuan Huang Title: PhD Student Date: May 24, 2023 Place: Amsterdam, The Netherlands

Yu-Hsuan Huang

2.D.3 Statement by Reference/Optimized Implementations' Owner(s)

The following must also be included:

I, <u>Ludo Niels Pulles</u> of Centrum Wiskunde en Informatica, Science Park 123, 1098 XG Amsterdam, am the owner of the submitted reference implementation and optimized implementations and hereby grant the U.S. Government and any interested party the right to reproduce, prepare derivative works based upon, distribute copies of, and display such implementations for the purposes of the post-quantum algorithm public review and evaluation process, and implementation if the corresponding cryptosystem is selected for standardization and as a standard, notwithstanding that the implementations may be copyrighted or copyrightable.

Signed: Ludo Niels Pulles

Title: PhD student Date: 25 May 2023

Place: Amsterdam, the Netherlands

Statement 2.D.3

I, Thomas Pornin, of NCC Group, 7 Father David Bauer Drive, Suite 100, Waterloo, ON, Canada, N2L 0A2, am the owner or authorized representative of the owner (print full name, if different than the signer) of the submitted reference implementation and optimized implementations and hereby grant the U.S. Government and any interested party the right to reproduce, prepare derivative works based upon, distribute copies of, and display such implementations for the purposes of the post-quantum algorithm public review and evaluation process, and implementation if the corresponding cryptosystem is selected for standardization and as a standard, notwithstanding that the implementations may be copyrighted or copyrightable.

Signed: Thomas Pornin

Title: Technical Vice President

Date: 2023/04/14 Place: Québec, Canada